

2/27/03

NOISE MONITORING AND COMPLIANCE PROGRAM

Introduction

This document defines a noise monitoring and compliance program that will be implemented to ensure that on-site operation of the Cadman North Bend (Grouse Ridge) facility is in compliance with environmental noise limits established by King County. In addition, while Cadman believes that noise from traffic on public roads is exempt from local government regulation, Cadman is voluntarily proposing to undertake a noise monitoring and reduction program at an off-site location as described in Part 1, Section 8 below to reduce noise from trucks going to and from the site on SE 146th Street. Based on Cadman's agreement, King County has approved this noise monitoring and compliance program. The program is modeled after the successful noise monitoring program established for the Cadman Black Diamond facility. The Black Diamond program has been in place for more than three years, and has consistently verified that noise levels from facility operations are at or below the levels predicted in the environmental noise analysis for the project. The program has successfully ensured that facility noise levels are within the required limits, with reports filed on a regularly scheduled basis to document and evaluate the facility operational noise levels.

This program for the North Bend facility is directed toward both on-site and off-site noise generation, and adheres to the noise control measures set forth in the project Final Environmental Impact Statement (FEIS) and in the additional noise analysis prepared by King County. The program also provides a management tool for reducing overall site noise, should monitoring show that to be necessary to achieve compliance. The program includes provisions for:

- * Noise monitoring at defined periodic intervals, and in response to concerns or specific noise-generating sources;
- * Reporting;
- * Required corrective action.

The program is divided into two parts: (I) general provisions; and (II) periodic monitoring, reporting and corrective actions to demonstrate and ensure compliance with King County noise regulations, and in response to concerns. The program is described below.

Part I: General Provisions

1. **Purpose:** The intent of the noise monitoring program is to ensure that mining operations comply with County regulations and follow the noise control measures of the project FEIS and the FEIS Addendum. The program identifies the applicable regulations, allowable noise

limits, monitoring and reporting requirements, and corrective action. The performance goals set forth in Part I, Section 8 establish the standards that Cadman is committing to meet.

2. ***Applicable Regulations.*** Applicable noise regulations used to determine compliance are those contained in the King County Code, Chapter 12.86 through 12.100.
3. ***Qualified Consultant:*** Cadman Inc. will retain a King-County approved, independent acoustical consultant, qualified by education and professional experience to perform and interpret noise analyses. Such consultant will be employed to measure sound levels in the vicinity of the project at unannounced times as described below, to interpret data, to suggest corrective actions should such be necessary, and to prepare the reports required by this program.
4. ***Instrumentation:*** Noise level measurements will be made using a Type I Sound Level Meter (SLM) that complies with ANSI S1.4. The microphone will be mounted on a tripod and at a height of 5 feet above the ground, and will be equipped with a suitable windscreen. The SLM will be calibrated immediately before and after the measurements. The calibration device will have been certified within the past year by a recognized standards laboratory.
5. ***Measurement Settings and Metrics:*** The SLM will be set to the FAST response and A-weighting. Sound levels will be measured as equivalent sound levels (Leq), maximum sound level (Lmax), and the sound levels exceeded 2.5, 8.3 and 25 percent of the time (L2.5, L8.33, and L25). These metrics correspond closely to the requirements specified in the King County Noise Code (KCC Chapter 12.88.020 & 12.88.030).
6. ***Monitoring Locations:*** For periodic monitoring, noise levels will be measured at locations identified in Appendix A, Tables 2 and 3. These locations shall be deemed acceptable for noise monitoring upon approval of this plan by the appropriate governing agencies. The acoustical consultant will select specific locations for measurements based on conditions at the time of each measurement and proximity to dominant mining noise sources. The permit holder shall secure the necessary permission to use approved sites for monitoring.

For monitoring in response to specific concerns, sound levels will be measured at the location of the noise generator(s) and/or receiver location(s) of concern.

The date and time at which the noise measurements are to be made will not be announced to the operator of the mining facility in advance.

7. ***Reporting:*** Measurements will be documented in a report summarizing the results and describing:
 - a. Instrumentation used in the measurements, including calibration records;
 - b. Measurement locations, including a sketch;

- c. Measurement beginning time and duration at each location;
 - d. The equivalent sound level (Leq), the maximum sound level (Lmax), and the sound levels exceeded 2.5, 8.3 and 25 percent of the time (L2.5, L8.33, and L25). Compliance with the King County noise limit shall be assessed strictly by the Lmax, L2.5, L8.33 and L25 generated by on-site Cadman activity.
 - e. A description of the dominant noise source(s) contributing to the measured levels. Significant non-Cadman sources will also be noted;
 - f. A description of the process rates or level of activity at the noise source(s) as observed, including a list of equipment that is running during the measurement period;
 - g. A description of meteorological conditions during the measurement period, based on data collected at the Weather Center in North Bend and on measurements of wind speed to be collected during the measurement period. The sound level measurements and meteorological data will be correlated to the extent possible in order to identify meteorological conditions that cause exceedances of the noise criteria specified in Part I, Section 2.
8. ***The Edgewick Inn Monitoring and Evaluation:*** Cadman includes the following provisions to monitor at the Edgewick Inn for exposure to Cadman off-site truck traffic noise on SE 146th Street and potential noise control of same.
- a. Exterior/Interior Noise Reduction - The exterior-to-interior noise reduction of the Edgewick Inn will be measured on the north side of the Inn, which has the highest level of noise exposure to trucks traveling on SE 146th Street to enter and leave the site. All future noise monitoring measurements will be conducted on the exterior of the building, with the measured noise reduction applied to the exterior levels to determine the interior noise level. The noise reduction will be measured in one-third octave bands, to allow evaluation of frequency-specific interior noise levels. The noise-reduction measurements can be repeated on future occasions if necessary in response to concerns or following any changes in the exterior construction of the Edgewick Inn building.
 - b. Existing Interior Noise Levels – Existing hourly Leq and L1 interior noise levels will be measured prior to the initial commencement of Cadman operations at the project site. The measurements will be conducted continuously for a minimum of 48 hours, scheduled to include two full workday periods. The measurements will establish baseline interior noise levels for evaluation of future interior noise levels due to Cadman operations. (The Leq and L1 metrics will provide an hourly level and reasonably sustained peak level, while avoiding the potentially misleading single-event Lmax.) The measurements are contingent upon Edgewick Inn approval, and will require the use of an unoccupied guest room on the north side of the Inn for the duration of the measurement period.

- c. Measurements of Noise from Operations – Noise measurements will be conducted continuously for a one-hour period, four times per year (once every three months). The measurement location will be at the northeast corner of the Edgewick Inn, setback from SE 146th Street a distance equal to the setback of the north side of the Inn. This location corresponds generally to the SLM 8 location described in the project EIS, and represents the Edgewick Inn traffic noise exposure from SE 146th Street. The use of this location for noise measurements will be subject to approval by the property owner. The SLM will be positioned to minimize building reflections. The measurement metrics will be Leq and L1, to correspond to the baseline measurements. The SLM will be “paused” to the extent possible during non-Cadman events such as truck pass-bys and vehicles leaving the adjacent gas station. Alternatively, 1-second Leq measurements will be conducted for one-hour measurement periods as described above, with post-measurement processing applied to the data to remove non-Cadman noise events. The noise levels will be measured in one-third octave bands, and the measured exterior noise reduction (see Section a) will be applied to the exterior levels to establish the interior noise level due to Cadman activity.
 - d. Noise Criteria – Noise from traffic on public roads is exempt from the noise limits of King County Code Chapter 12.88. An hourly Leq interior noise level of 45 dBA or lower shall be the criterion for measuring compliance with this noise reduction program – at the Edgewick Inn.
 - e. Noise Control – If the noise measurements indicate that levels due to Cadman off-site trucking operations exceed the criteria specified in Section d, off-site trucking during nighttime hours (10 p.m. to 7 a.m.) will cease until effective noise control measures have been implemented. Cadman and King County will discuss appropriate noise control measures at the Edgewick Inn site or within abutting right-of-way. Elevated noise measurements can be alleviated through the implementation of various alternative measures, such as (1) reducing the number of off-site truck trips during nighttime hours; (2) constructing a noise barrier along the south margin of the SE 146th Street right-of-way adjacent to the north side of the Edgewick Inn parking lot; and (3) increasing the sound resistance of the northside building wall through architectural modifications.
 - f. Cooperation with Edgewick Inn – In order to implement this effort to control noise affecting the Edgewick Inn, Cadman will require cooperation from the owners of the Edgewick Inn to perform some aspects of the noise monitoring and control activities. If the owners of the Edgewick Inn choose not to cooperate in these efforts, Cadman will use its best efforts to accomplish the goals set forth in this section by measures that can be taken completely on public property and such measures will be deemed to satisfy the goals of this section.
9. **Phase 2 Rock Crusher Monitoring:** Cadman will notify the acoustical consultant prior to operation of the rock crusher in Phase 2 of the project. The consultant will monitor crusher

noise levels during the initial start-up and operation of the crushing equipment. The measurement will be conducted at the location identified in Appendix A, Table 2, that represents the highest level of noise exposure to the crushing equipment. If the noise level is in violation of the County Code, the crushing operation will cease until the noise is reduced to levels that comply with code limits.

Part II: Periodic Monitoring and Response to Concern Areas

Part II of the program contains directions for periodic monitoring of project-related noise levels and monitoring related to specific concerns, and to determine compliance with King County noise limits.

1. *Monitoring Schedule, Duration and Location:*

- a. All noise measurements described below will be performed without advance notice of the operator of the mining facility, except for those requested by the operator to investigate specific issues or concerns.
- b. Measurements will be conducted four times per year (once every three months) starting prior to project startup (to obtain baseline sound levels at previously unmeasured locations) and continuing throughout the duration of the operation. Measurements will be conducted during periods with the highest levels of on-site activity for at least two of the four measurements occurring in one year.
- c. Monitoring will also be conducted if concerns are received that require further investigation. Telephone calls concerning mine operations noise should be directed to the Cadman Supervisor of Environmental Services, 425-867-1234. This element of the program will remain in effect for the life of the operation.
- d. Measurements will be taken at each location for at least 15 minutes during periods when the wind speed is not more than 12 mph nor precipitation falling in such a way as to affect the equipment or the measurement readings.
- e. At least one measurement per year will be two hours in duration, conducted at a peak activity time period during a month with a high on-site activity level. The measurement will occur at the monitoring location with the highest noise levels (based on previous monitoring).
- f. If noise level contributions from other sources not associated with on-site mining activities are encountered, such as off-site vehicular traffic, trains, helicopters or aircraft, and the measurement personnel believe these sources are affecting the measured sound levels, the SLM will be paused until these sources are gone or else the measurement will be postponed. Pauses will be noted and reported. If such noise sources are so persistent

as to preclude a meaningful measurement of noise associated with the mining facility, this condition will be reported to Cadman and to King County. Alternatively, 1-second Leq measurements will be conducted for measurement periods as described above, with post-measurement processing applied to the data to remove non-Cadman noise events.

- g. The consultant will prepare a report summarizing the findings of the monitoring. The report will be provided to King County with a copy to Cadman. If the report indicates non-compliance, the provisions of this program for Corrective Action will apply.

2. *Corrective Action:*

- a. If Cadman on-site operations violate County regulations; or the noise criteria set forth in this program at Part I, paragraph 8.d., in this program, the acoustical consultant will notify King County and Cadman immediately. Within one day of receipt of notice of a violation, Cadman shall notify the County of the cause of the violation and, if known, potential solutions. Cadman shall immediately reduce or eliminate the noise source responsible for the violation(s).
- b. Noise reduction measures for on-site operations may include
 - equipment modification,
 - changes in operational procedures,
 - changes in hours of operation,
 - barrier construction or modification,
 - equipment enclosures, or other measures as appropriate.
- c. Noise reduction measures for off-site trucks affecting the Edgewick Inn may include
 - cessation of off-site trucking during nighttime hours (10 p.m. to 7 a.m.) until effective noise control measures have been implemented;
 - reduction in the number of off-site truck trips during nighttime hours;
 - reduction of truck speeds on SE 146th Street to 5 MPH, or as necessary for compliance with noise criteria;
 - modifications to the exterior construction of the Edgewick Inn to improve the building's exterior-to-interior noise reduction. The modifications may affect the exterior walls, windows, HVAC penetrations, and patio doors;
 - construction of a sound barrier along SE 146th Street on the north side of the Edgewick Inn.
- d. If measurements indicate that noise levels are non-compliant with grading permit conditions, the director or his designee responsible for code compliance may also determine that civil code violations have occurred or are occurring and may initiate appropriate legal action in accordance with KCC Title 23. Response to non-compliance shall be in accordance with KCC 23.02.040.A 1-7.

- e. Pursuant to a noise violation as specified in Section a. above, a follow-up noise measurement to demonstrate compliance will be conducted at the location of the violation within one week of the time Cadman notifies the acoustical consultant that the condition has been corrected.

Appendix A

The applicable limits for the noise-monitoring program are contained in the King County Code, Chapter 12.88, *Environmental Sound Levels*. The King County Code limits apply to noise produced by all on-site activities and received at residential or commercial properties. Noise from off-site traffic will be evaluated at the Edgewick Inn in accordance with Section 9 of this program. The measurement locations are those used to establish the baseline levels in the DEIS and FEIS, identified in Tables 2 and 3 below. The baseline noise levels reported in the project FEIS will be verified with additional measurements prior to start-up of Cadman activities.

The applicable King County Code noise limits for an industrial source and rural or commercial receiver are presented in Table 1. Sounds of short duration may exceed the maximum permissible sound levels in Table 1 by a total of not more than 15 minutes in any one-hour period, when comprised of one or any combination of the following:

- (1) 5 dBA for a total of fifteen minutes, or (KCC 12.88.030 C.)
- (2) 10 dBA for a total of five minutes, or
- (3) 15 dBA for a total of one-and-one-half minutes.

Table 1 King County Maximum Permissible Sound Levels (dBA) Industrial Source Property		
	Rural Receiving Property	Commercial Receiving Property
Weekday Daytime Hours* (7 a.m. to 10 p.m.)	57	65
Weekday Nighttime Hours (10 p.m. to 7 a.m.)	47	65

* Weekend hours for the specified allowable noise limits are 9 a.m. to 10 p.m. (daytime) & 10 p.m. to 9 a.m. (nighttime)

Truck traffic on public roads is exempt from the noise limits of King County Code Chapter 12.88. King County Code Chapter 12.90.010 establishes limits on the sound level emissions of individual vehicles.

Tables 2 and 3 present descriptions of measurement locations associated with the monitoring of noise from on-site activities, and for monitoring noise from off-site trucking operations. Monitoring locations generally correspond to locations as shown in Figure 5-1 of the project FEIS.

Table 2 Locations for Monitoring of Noise from On-Site Activities	
Measurement Location	Description
Alternative 2	
Site 1	Adjacent to SW corner of Lu Residence, 17 feet south of SW corner S18 T23N R93
Site 4	Potential new school site at Lake Dorothy Road, 60 feet north of and 270 feet east of SE Middle Fork Road
Site 7	SE 144 th Street near the NW corner of the project lower site
Site 8 – Edgewick Inn*	Northeast corner of Edgewick Inn (see Section 9, Part c)

* Use of this location for monitoring is subject to approval by the property owner

Table 3 Locations for Monitoring of Noise from Off-Site Trucking Activities	
Measurement Location	Description
Alternative 2	
Site 8 - Edgewick Inn*	Northeast corner of Edgewick Inn (see Section 9, Part c). Baseline sound levels will be determined prior to commencement of the monitoring plan.

* Use of this location for monitoring is subject to approval by the property owner

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